

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-2, 4, 5 and 18 remain active in this case, Claim 1 having been amended, Claims 7, 10 and 17 having been canceled and Claim 18 added by the present amendment, Claims 3, 6, 8, 9, 11 and 12 having been previously canceled and Claims 13-16 having been withdrawn from consideration as directed to a non-elected invention.

In the outstanding Office Action, Claims 1, 2, 4, 5 and 17 were rejected under 35 U.S.C. §102(b) as being anticipated by Cottel (U.S. Patent No. 3,715,104); Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Cottel; and Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Cottel in view of Muller (U.S. Patent No. 2,615,692).

In light of the outstanding grounds for rejection, Claim 1 has been amended to clarify the claimed invention, thereby to more clearly patentably define over the cited prior art. To that end, amended Claim 1 includes clarifying features formerly stated in Claims 7, 10 and 17, now canceled. No new matter has been added.

New Claim 18 differs from the pending Claim 1 in that in the structure of Claim 18, the vessel is not formed with a recess to a bottom portion of the vessel, and the reflector is detachably disposed on the bottom portion of the vessel.

Applicants respectfully traverse the outstanding grounds for rejection based on the cited prior art, because in Applicants' view, the pending claims patentably define over the cited prior art references.

In particular, Cottell discloses an apparatus for carrying out ultrasonic agitation of liquid dispersions by utilizing ultrasonic vibration for rupturing yeast cell walls. This

purpose fundamentally differs from that of Applicants' invention. Cottell discloses the plate 10 made exchangeable, which is different from the structure recited in amended Claim 1 in which a recess is formed to a vessel bottom portion, into which a reflector is detachably mounted.

Furthermore, in the Cottell structure, liquid to be treated is supplied in a space between plates 9 and 10 from a liquid inlet (conduit 5) formed to the side of the container.

On the other hand, in the claimed liquid-mixing apparatus recited in Claim 1, at least one (one of plural) perforation which extend through a center area of the reflector and penetrates the bottom portion of the vessel, and through which the mixture components are fed to a space between the vibrator and the reflector through a mixture component supply line connection to the perforation.

That is, in the Cottell structure, the liquid (article) is introduced from the side surface, whereas in Applicants' invention, the mixture components are fed to the space between the vibrator and the reflector. The Cottell structure is significantly different from Applicants' invention, where the components can be uniformly distributed (supplied) into the treatment space. In the meantime, a hole formed to a central portion of the plate of the Cottell is a discharge hole communicated with an outlet.

In addition, Cottell discloses that a space between the plates 9 and 10 is narrow, but fails to define such space (distance) to be less than 10 mm. According to the claimed liquid-mixing apparatus defined in Claim 1, in which the space (distance) is defined to be less than 10 mm, cavitation bubbles destroy and cause generation of impact waves. As disclosed in [0116] of Applicants' published application, "since the distance between the vibrating plate 13 and the reflecting plate 14 placed on the vessel bottom is small, the shock waves created in the cavitation-generating zone 15 can be more readily applied to the liquid components as

compared with a technique in which raw materials are fed to a side portion of the space between the vibrating plate 13 and the reflecting plate 14. Therefore, the liquid components can be converted into an emulsion with a finer particle size.” It is respectfully submitted that such features and concomitant advantages are not suggested or obviated by Cottell.

Muller, cited in combination with Cottell to find the subject matter of Claim 10 obvious, discloses a vibratory mixer provided with a plate 4 at the front end of a rod 3 connected to a vibrating source, and the plate 4 is provided with an inclination hole 5 having inclined inner surface for sufficiently agitating upper and lower liquids through the inclination hole 5. However, Muller fails to clearly disclose that at least one of a surface of the vibrator that faces the reflector and a surface of the reflector that faces the vibrator has a large number of cone-shaped pits for generating shock waves. This shock waves generated in the pits are converged on focal sections existing between the vibrator and the reflector, and the focal sections form an ultra strong shock wave-generating zone existing between the vibrator and the reflector.

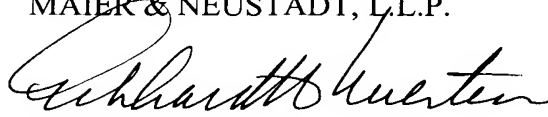
Moreover, in Applicants’ invention, there are formed a number of bottom cone-shaped pits as mentioned above, which are not disclosed in the Muller structure.

Accordingly, amended Claim 1 and new Claim 18 which recites similar features, as well as the pending claims dependent on Claim 1, are believed to be patentably distinguishing over the cited prior art.

Accordingly, in view of the present amendment and in light of the above comments, it is respectfully submitted that the outstanding grounds for rejection have been overcome, and withdrawal thereof is respectfully requested. No further issues are thus believed to be outstanding, and the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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